

EXMC TECHNOLOGY WATCH

M. Krihak¹, Y. Barr², S. Watkins², P. Fung³, T. McGrath⁴, and D. Baumann⁴

¹University of California Santa Cruz, Moffett Field, CA, ²University of Texas Medical Branch, Galveston, TX,

³NASA Ames Research Center, Moffett Field, CA, ⁴NASA Johnson Space Center, Houston, TX

ABSTRACT

The Technology Watch (Tech Watch) project is a NASA endeavor conducted under the Human Research Program's (HRP) Exploration Medical Capability (ExMC) element, and focusing on ExMC technology gaps. The project involves several NASA centers, including the Johnson Space Center (JSC), Glenn Research Center (GRC), Ames Research Center (ARC), and the Langley Research Center (LaRC).

The objective of Tech Watch is to identify emerging, high-impact technologies that augment current NASA HRP technology development efforts. Identifying such technologies accelerates the development of medical care and research capabilities for the mitigation of potential health issues encountered during human space exploration missions. The aim of this process is to leverage technologies developed by academia, industry and other government agencies and to identify the effective utilization of NASA resources to maximize the HRP return on investment. The establishment of collaborations with these entities is beneficial to technology development, assessment and/or insertion and further NASA's goal to provide a safe and healthy environment for human exploration.

In 2011, the major focus areas for Tech Watch included information dissemination, education outreach and public accessibility to technology gaps and gap reports. The dissemination of information was accomplished through site visits to research laboratories and/or companies, and participation at select conferences where Tech Watch objectives and technology gaps were presented. Presentation of such material provided researchers with insights on NASA ExMC needs for space exploration and an opportunity to discuss potential areas of common interest. The second focus area, education outreach, was accomplished via two mechanisms. First, several senior student projects, each related to an ExMC technology gap, were sponsored by the various NASA centers. These projects presented ExMC related technology problems firsthand to collegiate laboratories. Second, a RASC-AL (Revolutionary Aerospace Systems Concepts – Academic Linkage) topic for FY12 was developed for medical systems and astronaut health under the Human-Focused Mars Mission Systems and Technologies theme. Announcement of the competition was made to the public in August 2011. Finally, critical Tech Watch information was prepared for public release in the form of gap reports. Complementing the ExMC technology gaps in the public domain, gap reports were generated, reviewed and revised through a series of technical, medical and subject matter expert reviews before approval for public release. An important vehicle for the public release of such documents was development of the ExMC wiki website, which will continue to be populated with gap reports and relevant documents throughout the upcoming year.